

A marked up version of the changes made to the application is attached hereto.

Allowable Subject Matter

Claims 7, 12-14, 16, 18-19, 20-26 are indicated as allowable if rewritten to overcome the rejection under Section 112 (discussed below), and to include all limitations of the base claim and any intervening claims. Claims 7, 12, 16, 18 and 20 have been amended to place these claims in independent form. It is believed that these claims are in condition for allowance.

Obviousness-Type Double Patenting Rejection

Claims 1-26 stand rejected under the judicially created doctrine of obviousness-type double patenting, as being unpatentable over Claims 1-13 of U.S. 6,547,377. This ground of rejection is mooted by the terminal disclaimer filed herewith.

Claims Objections

The objection to Claim 21 has been addressed in the manner suggested by the Examiner. The objection to Claim 1 is mooted by cancellation of Claim 1. Claims depending from Claim 1 and indicated as allowable have been rewritten in independent form, and to address this objection.

Claims Rejections - 35 USC 112, 2nd ¶

Claims 1-26 stand rejected as being indefinite. The rejection has been mooted as to cancelled Claims 1-6, 11, 15.

While Claim 1 has been cancelled without prejudice, Claims 7, 12, 16 and 18 have been amended to place these claims in condition for allowance and explicitly recite the limitations of Claim 1. The grounds for rejection of Claim 1, to the extent applied to the claims depending from Claim 1, are respectfully traversed.

In rejecting a claim under the second paragraph of Section 112, it is incumbent on the Examiner to establish that one of ordinary skill in the art, when reading the claims in light of the supporting specification, would not be able to ascertain with a reasonable degree of precision and particularity the particular area set out and circumscribed by the claims.

Ex parte Wu, 10 USPQ 2d 2031, 2033 (B.P.A.I.) 1989). Applicants respectfully submit that the Examiner has not established prima facie that the claims are indefinite.

A first ground of rejection is that it is unclear what the "areas of relatively high air diffusion" through "one or more structures comprising the ink supply" are, and how the ink supply can comprise the ink supply on line 4 of Claim 1. No reasoning is supplied as to why one of ordinary skill would not be able to ascertain with a reasonable degree of precision the particular area circumscribed by the claims. For this reason alone, a prima facie case of obviousness has not been established.

It is noted that the specification describes exemplary "areas" and "structures." See, e.g., 7:15-20 and FIG. 2, and 9:9-29 and FIGS. 7-8.

The Examiner further states that it is unclear how the ink can be disposed in the ink supply. However, applicants submit that a claim is not required to enable one of ordinary skill to make and use the claimed invention to be considered definite under Section 112, second paragraph; that is a requirement of the specification. See, e.g. In re Naquin, 158 USPQ 317 (CCPA 1968).

The Examiner further states that it is unclear how the recited "areas," "structures," and "quantity of liquid unsaturated ink" (note that the office action referred to "liquid saturated ink" but the claim refers to "unsaturated ink") reads on the preferred embodiment, stating that no such elements can be determined on the drawings. The "area" and "structures" are addressed above. Liquid unsaturated ink is discussed, e.g., at the paragraph bridging pages 10-11, and illustrated in FIG. 12. Similar considerations apply to Claim 21.

The limitations of Claim 2 are set out in Claim 7. The lack of antecedent basis for "the external environment" has been addressed by Claim 7 as amended. The Examiner further states that it is unclear how the interconnect can be interconnected to the system. Claim 7 does not specify how the interconnect can be connected to a system, but this is a matter not of indefiniteness, but claim breadth.

The Examiner alleges that in Claim 7, "the fluid passage" on line 7 lacks antecedent basis. This ground of rejection is not understood, since at lines 3-4 the claim recited the "chassis having a fluid passage...". The Examiner further alleges that the recitations "ink reservoir" on line 5 and "barrier structure" on line 7 are confusing because it is unclear if this is an additional "reservoir" and

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"barrier structure" or a further recitation of the previously claimed "reservoir" and "barrier structure" in claim 2. The claim recitation is of an "ink reservoir attachment" – not an "ink reservoir" and so this claim recitation is definite. The amendment to Claim 7 further defines that the first barrier structure shields the fluid passage, addressing the last ground set out for Claim 7.

The informality noted with respect to Claim 23 has been addressed by the amendment to Claim 23.

The rejection under Section 112, second paragraph, should be withdrawn. The claims are clear and definite. No showing has been made to support a prima facie case of indefiniteness.

Claim Rejections - 35 USC 102

Claim 1 stands rejected as being anticipated by Cowger et al.

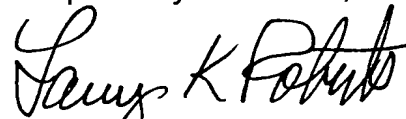
Claims 1-6, 8-11, 15 and 17 stand rejected as being anticipated by Kamisuki et al.

While applicants do not agree with these rejections, Claims 1-6, 11, 15 and 17 have been cancelled without prejudice to advance this case to issue. Claims 8-10 are amended to depend, directly or indirectly, from allowable Claim 7.

CONCLUSION

The outstanding objections and rejections have been addressed, and the application is in condition for allowance. Such favorable reconsideration is solicited.

Respectfully submitted,



Larry K. Roberts
Registration No. 28,464

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Law Offices of Larry K. Roberts, Inc.
P.O. Box 8569
Newport Beach, CA 92658-8569
Telephone (949) 640-6200
Facsimile (949) 640-1206

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

At page 1, amend the recitation of the title as follows:

INK SUPPLY WITH AIR DIFFUSION BARRIER FOR UNSATURATED [AIR] INK

At page 24, amend the recitation of the title as follows:

INK SUPPLY WITH AIR DIFFUSION BARRIER FOR UNSATURATED [AIR] INK

IN THE CLAIMS

7. (Amended) [The ink supply of claim 2] An ink supply for an inkjet printing system, the ink supply having one or more areas of relatively high air diffusion through one or more structures comprising the ink supply, the ink supply comprising one or more air diffusion barrier structures shielding each of said one or more areas of relatively high air diffusion from air diffusion, and a quantity of liquid unsaturated ink disposed in said ink supply, and wherein the ink supply includes a reservoir for holding the quantity of liquid unsaturated ink, a fluid interconnect for interconnecting to the printing system when the ink supply is installed in the printing system, wherein the one or more areas of relatively high air diffusion includes an ink flow path between the reservoir and the fluid interconnect, and wherein the one or more air diffusion barrier structures includes a first barrier structure for shielding the ink flow path from air diffusion from an external environment into the ink flow path, further comprising a chassis member fabricated of a material having a relatively high air diffusion rate, the chassis member having a fluid passage formed therethrough leading between a fluid interconnect port and an ink reservoir attachment, and wherein the [one or more air diffusion barrier structures includes a] first barrier structure [shielding] shields the fluid passage.

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8. (Amended) The ink supply of claim [2] 7 wherein the ink reservoir is a collapsible bag.

12. (Amended) An ink supply for an inkjet printing system, the ink supply having one or more areas of relatively high air diffusion through one or more structures comprising the ink supply, the ink supply comprising one or more air diffusion barrier structures shielding each of said one or more areas of relatively high air diffusion from air diffusion, and a quantity of liquid unsaturated ink disposed in said ink supply, wherein the ink supply includes a reservoir for holding the quantity of liquid unsaturated ink, and a fluid interconnect for interconnecting to the printing system when the ink supply is installed in the printing system, the fluid interconnect including a septum for receiving a needle when the ink supply is installed in the printing system, wherein the one or more areas of relatively high air diffusion include the septum, and wherein the one or more barrier structures includes a septum barrier structure applied to the septum, [The ink supply of claim 11] wherein the septum barrier structure includes a metal layer affixed to the septum after the quantity of ink is disposed in said ink supply.

16. (Amended) An ink supply for an inkjet printing system, the ink supply having one or more areas of relatively high air diffusion through one or more structures comprising the ink supply, the ink supply comprising one or more air diffusion barrier structures shielding each of said one or more areas of relatively high air diffusion from air diffusion, and a quantity of liquid unsaturated ink disposed in said ink supply, and wherein the ink supply includes a reservoir for holding the quantity of liquid unsaturated ink, and a fluid interconnect for interconnecting to the printing system when the ink supply is installed in the printing system, the fluid interconnect including a septum for receiving a needle when the ink supply is installed in the printing system, and wherein the septum is fabricated of an elastomeric material having a high air diffusion barrier property, the septum comprising the one or more barrier structures, [The ink supply of claim 15] wherein the elastomeric material is selected from a group including EPDM, Butyl, an EPDM/polypropylene (PP) blend, or a Butyl/PP blend.

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17. (Amended) The ink supply of claim [1] 7, wherein the liquid unsaturated ink has an air solubility level of 70% or less.

18. (Amended) An ink supply for an inkjet printing system, the ink supply having one or more areas of relatively high air diffusion through one or more structures comprising the ink supply, the ink supply comprising one or more air diffusion barrier structures shielding each of said one or more areas of relatively high air diffusion from air diffusion, and a quantity of liquid unsaturated ink disposed in said ink supply, wherein the liquid unsaturated ink has an air solubility level of 70% or less, and [The ink supply of claim 17,] wherein the air diffusion barrier structures are constructed to shield the liquid unsaturated ink from air diffusion so as to provide a shelf life of at least six months, such that the air solubility level does not exceed 70% during the shelf life.

20. (Amended) An ink supply for an inkjet printing system, the ink supply having one or more areas of relatively high air diffusion through one or more structures comprising the ink supply, the ink supply comprising one or more air diffusion barrier structures shielding each of said one or more areas of relatively high air diffusion from air diffusion, and a quantity of liquid unsaturated ink disposed in said ink supply, [The ink supply of claim 1,] wherein the unsaturated ink has an initial saturation level of 20% or less, and wherein the air diffusion barrier structures are constructed to shield the liquid unsaturated ink from air diffusion so as to provide a shelf life of at least six months, such that the air solubility level does not exceed 70% during the shelf life.

21. (Amended) A replaceable ink supply for an inkjet printing system including an inkjet printhead, the ink supply comprising:
an ink reservoir structure defining an ink reservoir;
a fluid interconnect fluidically coupled to the ink reservoir;
a body of unsaturated ink disposed in said ink reservoir;
the fluid interconnect providing a fluid path for the ink to pass from the reservoir to the printing system when the ink supply is installed in the printing system; and

an air diffusion barrier system protecting the ink reservoir and the fluid interconnect from air diffusion for a shelf life of at least a period of six months, so that ink delivered to the printing system remains in [a] an unsaturated condition for at least said period of six months.

23. (Amended) The ink supply of claim 21, wherein:

the ink reservoir structure includes a collapsible bag and a chassis structure to which the bag is attached;

the fluid interconnect comprises a fluid passageway formed by the chassis structure leading from the bag to a fluid outlet, and a septum disposed in said passageway at said fluid outlet; and

the air diffusion barrier system includes a first barrier structure for shielding the passageway from air diffusion from [the] an external environment into the ink flow path, and a second barrier structure for shielding the fluid outlet from air diffusion into the ink flow path from the external environment.

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